

**IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE**

FG SRC LLC,

Plaintiff,

v.

XILINX, INC.,

Defendant.

Case No. 1:20-cv-00601-LPS

JURY TRIAL DEMANDED

**PLAINTIFF'S FIRST AMENDED COMPLAINT FOR PATENT INFRINGEMENT**

Plaintiff FG SRC LLC ("SRC") files this First Amended Complaint for Patent Infringement ("First Amended Complaint") against Defendant Xilinx, Inc. ("Defendant" or "Xilinx"). Plaintiff alleges as follows:

**I. NATURE OF THE ACTION**

1. This is an action for infringement of U.S. Patent Nos. 7,149,867 (the "'867 patent") and 9,153,311 (the "'311 patent").
2. SRC is a limited liability company incorporated in Delaware and is the successor to SRC Computers, LLC ("SRC Computers").
3. Xilinx, Inc. is a Delaware corporation with its principal place of business located at 2100 Logic Drive, San Jose, California 95154.

**II. JURISDICTION**

4. This action arises under the Patent Laws of the United States, 35 U.S.C. § 1, *et seq.*, including 35 U.S.C. §§ 271, 281, 283, 284, and 285. This is a patent infringement lawsuit, over which this Court has subject matter jurisdiction under 28 U.S.C. §§ 1331 and 1338(a).

5. This Court has general and specific personal jurisdiction over Defendant because it is present in and transacts and conducts business in and with residents of this District and the State of Delaware. Defendant is incorporated in the State of Delaware and has conducted and does conduct business therein. Defendant has purposefully and voluntarily availed itself of the privileges of conducting business in the United States and the State of Delaware by continuously and systematically placing goods into the stream of commerce through a distribution channel with the expectation that they will be purchased by consumers in Delaware. Plaintiff's causes of action arise directly from Defendant's business contacts and other activities in the State of Delaware.

6. Upon information and belief, Defendant has committed acts of infringement in this District giving rise to this action and does business in this District, including making sales and/or providing services and support for its customers in this District. Defendant purposefully and voluntarily sold one or more of its infringing products with the expectation that they would be purchased by consumers in this District. These infringing products have been and continue to be purchased by consumers in this District.

### **III. VENUE**

7. Venue is proper as to Defendant under 28 U.S.C. § 1400(b) in that Defendant is incorporated in Delaware and, therefore, resides in this District. *TC Heartland LLC v. Kraft Foods Grp. Brands LLC*, 137 S. Ct. 1514, 1521 (2017).

### **IV. FG SRC LLC AND DEFENDANT'S PRODUCTS**

#### **A. FG SRC LLC**

8. SRC Computers was co-founded by Seymour R. Cray, Jim Guzy, and Jon Huppenthal in 1996 to produce unique high-performance computer systems using Intel's Merced microprocessor.

9. SRC is the successor to SRC Computers.

10. Jim Guzy is a co-founder of Intel Corporation and served on Intel's board for 38 years.

11. Mr. Guzy was named to Forbes Midas List, which surveys the top tech deal makers in the world, in 2006 and 2007.

12. Seymour Cray was an American electrical engineer and supercomputer architect who designed a series of computers that were the fastest in the world for decades.

13. Mr. Cray has been credited with creating the supercomputing industry.

14. Unfortunately, Mr. Cray died shortly after founding SRC Computers.

15. But his legacy was carried on by Jon Huppenthal and a talented team of engineers that worked with Mr. Cray and Mr. Huppenthal for decades.

16. SRC Computers' focus was creating easy-to-program, general-purpose reconfigurable computing systems.

17. In early 1997, Mr. Huppenthal and his team realized that the microprocessors of the day had many shortcomings relative to the custom processing engines that they were used to.

18. As a result, they decided to incorporate dedicated processing elements built from Field Programmable Gate Arrays ("FPGAs") and that idea quickly evolved into a novel system combining reconfigurable processors and Central Processing Units ("CPUs").

19. SRC Computers' heterogeneous system had 100x performance, 1/50<sup>th</sup> of the operating expense, 1/100<sup>th</sup> of the power usage, and required 1/500<sup>th</sup> of the space of more traditional computer systems.

20. SRC Computers' proven systems are used for some of the most demanding military and intelligence applications, including the simultaneous real-time processing and analysis of

radar, flight and mission data collected from a variety of aerial vehicles in over 1,000 successful counter-terrorism and counter-insurgency missions for the U.S. Department of Defense.

21. SRC Computers offered its first commercial product in 2015 called the Saturn 1 server.

22. The Saturn 1 was 100 times faster than a server with standard Intel microprocessors while using one percent of the power.

23. The Saturn 1 was designed to be used in HP's Moonshot server chassis for data centers.

24. SRC Computers has had over 30 U.S. patents issued for its innovative technology.

25. SRC Computers' patent portfolio covers numerous aspects of reconfigurable computing and has more than 2,090 forward citations.

26. In February 2016, SRC Computers restructured into three new entities: a corporate parent FG SRC LLC, an operating company DirectStream, LLC ("DirectStream"), and a licensing entity SRC Labs, LLC ("SRC Labs").

## **B. Accused Products**

27. In this First Amended Complaint, Plaintiff accuses the following Xilinx products (collectively "'867 Accused Products") of infringing the '867 patent. For clarity, accused product families are listed, as are exemplary device names and/or part numbers or part number prefixes.

<b>Product Family</b>	<b>Exemplary Device Names</b>	<b>Exemplary Part Numbers and/or Part Number Prefixes</b>
Alveo accelerator cards	U25, U200, U250, U280	
Kintex UltraScale+ Evaluation Kit	KCU116	
Virtex UltraScale+ Evaluation Kit	VCU118	
Zynq UltraScale+ Evaluation Kits and Characterization Kits	ZCU102, ZCU104, ZCU106, ZCU111, ZCU208, ZCU216, ZCU1275, ZCU1285	

<b>Product Family</b>	<b>Exemplary Device Names</b>	<b>Exemplary Part Numbers and/or Part Number Prefixes</b>
Kintex UltraScale Evaluation Kit	KCU105	
Virtex UltraScale Evaluation Kit	VCU108	
Virtex-7 Evaluation Kits and Connectivity Kits	VC707, VC709	
Zynq-7000 Evaluation Kits	ZC702, ZC706	
Kintex UltraScale+ FPGA devices	KU3P, KU5P, KU9P, KU11P, KU13P, KU15P	
Virtex UltraScale+ FPGA devices	VU3P, VU5P, VU7P, VU9P, VU11P, VU13P, VU19P, VU27P, VU29P, VU31P, VU33P, VU35P, VU37P, VU45P, VU47P	
Zynq UltraScale+ MPSoC: CG devices	ZU2CG, ZU3CG, ZU4CG, ZU5CG, ZU6CG, ZU7CG, ZU9CG	
Zynq UltraScale+ MPSoC: EG devices	ZU2EG, ZU3EG, ZU4EG, ZU5EG, ZU6EG, ZU7EG, ZU9CG, ZU11EG, ZU15EG, ZU17EG, ZU19EG	
Zynq UltraScale+ MPSoC: EV devices	ZU4EV, ZU5EV, ZU7EV	
Zynq Ultrascale+ RFSoc devices	ZU21DR, ZU25DR, ZU27DR, ZU28DR, ZU29DR, ZU39DR, ZU43DR, ZU46DR, ZU47DR, ZU48DR, ZU49DR	
Kintex UltraScale FPGA devices	KU025, KU035, KU040, KU060, KU085, KU095, KU115	
Virtex UltraScale FPGA devices	XCVU065, XCVU080, XCVU095, VCVU125, XCVU160, XCVU190, XCVU440	
Spartan 7-Series FPGA devices		XC7S6, XC7S15, XC7S25, XC7S50, XC7S75, XC7S100
Artix 7-Series FPGA devices		XC7A12T, XC7A15T, XC7A25T, XC7A35T, XC7A50T, XC7A75T, XC7A100T, XC7A200T

<b>Product Family</b>	<b>Exemplary Device Names</b>	<b>Exemplary Part Numbers and/or Part Number Prefixes</b>
Kintex 7-Series FPGA devices		XC7K70T, XC7K160T, XC7K325T, XCE7K325T, XC7K355T, XCE7K355T, XC7K410T, XCE7K410T, XC7K420T, XCE7K420T, XC7K480T, XCE7K480T
Virtex 7-Series FPGA devices		XC7V585T, XCE7V585T, XC7V2000T, XC7VX330T, XCE7VX330T, XC7VX415T, XCE7VX415T, XC7VX485T, XCE7VX485T, XC7VX550T, XCE7VX550T, XC7VX690T, XCE7VX690T, XC7VX980T, XCE7VX980T, XCVX1140T, XC7VH580T, XC7VH870T
Zynq-7000 SoC devices	Z-7007S, Z-7012S, Z-7014S, Z-7010, Z-7015, Z-7020, Z-7030, Z-7035, Z-7045, Z-7100	XC7Z007S, XC7Z012S, XC7Z014S, XC7Z010, XC7Z015, XC7Z020, XC7Z030, XC7Z035, XC7Z045, XC7Z100

28. In this First Amended Complaint, Plaintiff accuses the '867 Accused Products and the U30 Alveo accelerator card of infringing the '311 patent (collectively "'311 Accused Products").

29. Each of the '867 Accused Products includes an FPGA.

30. Each of the '311 Accused Products includes an FPGA.

31. In contrast to a purpose-built chip which is designed with a single function in mind and then hardwired to implement it, an FPGA is more flexible.

32. An FPGA can be programmed in the field, after it has been plugged into a socket on a PC board.

33. FPGAs are based around a matrix of configurable logic blocks ("CLBs") connected via programmable interconnects.

34. FPGAs can be reprogrammed to desired application or functionality requirements after manufacturing. This feature distinguishes FPGAs from Application Specific Integrated Circuits (“ASICs”), which are custom manufactured for specific design tasks.

35. Today’s FPGAs easily push the 500 MHz performance barrier.

36. Programming an FPGA is a matter of connecting CLBs to create the desired logical functions (AND, OR, XOR, and so forth) or storage elements (flip-flops and shift registers).

37. Unlike a CPU which is primarily serial (with a few parallel elements) and has fixed-size instructions and data paths (typically 32 or 64 bit), an FPGA can be programmed to perform many operations in parallel, and the operations themselves can be of almost any width, large or small.

38. The highly parallelized model in FPGAs is ideal for building custom accelerators to process compute-intensive problems.

39. An FPGA has the potential to provide a 30x or greater speedup to many types of genomics, seismic analysis, financial risk analysis, big data search, and encryption algorithms and applications.

40. The Alveo U200 provides up to 90x higher performance than CPUs on key workloads at 1/3 the cost. See <https://www.xilinx.com/publications/product-briefs/alveo-product-brief.pdf>.

41. The Alveo U280 provides up to 3,000 times higher throughput than CPUs on key workloads such as Key-Value-Store. See <https://www.xilinx.com/publications/product-briefs/alveo-u280-product-brief.pdf>.

42. Defendant’s customers can use FPGAs to accelerate its applications more than 30x when compared with servers that use CPUs alone.

43. The speed increases referenced in the prior four paragraphs are a result of the FPGAs handling compute-intensive, deeply pipelined, hardware-accelerated operations, which also allows for highly parallelized computing.

## V. MARKING AND NOTICE

### A. Marking and Constructive Notice to Defendant.

44. SRC Computers complied with 35 U.S.C. § 287 by (i) placing the required notice on all, or substantially all, of its products made, offered for sale, sold, or imported into the United States, or (ii) providing actual notice to Defendant.

45. For example, SRC Computers placed notices such as the following on all, or substantially all, of its products since at least February 19, 2013:<sup>1</sup>



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*E.g.*, <https://web.archive.org/web/20100930014237/http://www.srccomp.com/techpubs/patentedtech.asp>.



46. The website listed in the notice, [WWW.SRCCOMP.COM/TECHPUBS/PATENTEDTECH.ASP](http://WWW.SRCCOMP.COM/TECHPUBS/PATENTEDTECH.ASP), stated the following:

**SRC<sup>®</sup> PATENTED TECHNOLOGY**

SRC Computers holds fundamental U.S. and foreign patents covering hardware and software techniques for vastly accelerating data processing through the use of reconfigurable elements comprising one or more Direct Execution Logic blocks operating in conjunction with one or more commodity microprocessors.

SRC patented technology, with filing dates back to 1997, also includes a number of general applications of Direct Execution Logic computing systems for parallelizing the execution of user-defined algorithms including acceleration of web site access and processing.

SRC Computers has exclusive rights to the following patents:

47. The website also listed at least the following patents since September 30, 2010. The '867 patent, asserted in this case, is highlighted:

Patent #	Patent Title
6,026,459	System and method for dynamic priority conflict resolution in a multi-processor computer system having shared memory resources
6,076,152	Multiprocessor computer architecture incorporating a plurality of memory algorithm processors in the memory subsystem
6,247,110	Multiprocessor computer architecture incorporating a plurality of memory algorithm processors in the memory subsystem
6,295,598	Split directory-based cache coherency technique for a multi-processor computer system
6,339,819	Multiprocessor with each processor element accessing operands in loaded input buffer and forwarding results to FIFO output buffer
6,434,687	System and method for accelerating web site access and processing utilizing a computer system incorporating reconfigurable processors operating under a single operating system image
6,356,983	System and method providing cache coherency and atomic memory operations in a multiprocessor computer architecture
6,594,736	System and method for semaphore and atomic operation management in a multiprocessor

6,627,985	Reconfigurable processor module comprising hybrid stacked integrated circuit die elements
6,781,226	Reconfigurable processor module comprising hybrid stacked integrated circuit die elements
6,836,823	Bandwidth enhancement for uncached devices
6,941,539	Efficiency of reconfigurable hardware
6,961,841	Multiprocessor computer architecture incorporating a plurality of memory algorithm processors in the memory subsystem
6,964,029	System and method for partitioning control-dataflow graph representations
6,983,456	Process for converting programs in high-level programming languages to a unified executable for hybrid computing platforms
6,996,656	System and method for providing an arbitrated memory bus in a hybrid computing system
7,003,593	Computer system architecture and memory controller for close-coupling within a hybrid processing system utilizing an adaptive processor interface port
7,124,211	System and method for explicit communication of messages between processes running on different nodes in a clustered multiprocessor system
7,126,214	Reconfigurable processor module comprising hybrid stacked integrated circuit die elements
7,134,120	Map compiler pipelined loop structure
7,149,867	System and method of enhancing efficiency and utilization of memory bandwidth in reconfigurable hardware
7,155,602	Interface for integrating reconfigurable processors into a general purpose computing system
7,155,708	Debugging and performance profiling using control-dataflow graph representations with reconfigurable hardware emulation
7,167,976	Interface for integrating reconfigurable processors into a general purpose computing system
7,197,575	Switch/network adapter port coupling a reconfigurable processing element to one or more microprocessors for use with interleaved memory controllers
7,225,324	Multi-adaptive processing systems and techniques for enhancing parallelism and performance of computational functions
7,237,091	Multiprocessor computer architecture incorporating a plurality of memory algorithm processors in the memory subsystem
7,282,951	Reconfigurable processor module comprising hybrid stacked integrated circuit die elements
7,299,458	System and method for converting control flow graph representations to control-dataflow graph representations

7,373,440	Switch/network adapter port for clustered computers employing a chain of multi-adaptive processors in a dual in-line memory module format
7,406,573	Reconfigurable processor element utilizing both coarse and fine grained reconfigurable elements
7,421,524	Switch/network adapter port for clustered computers employing a chain of multi-adaptive processors in a dual in-line memory module format
7,424,552	Switch/network adapter port incorporating shared memory resources selectively accessible by a direct execution logic element and one or more dense logic devices
7,565,461	Switch/network adapter port coupling a reconfigurable processing element to one or more microprocessors for use with interleaved memory controllers
7,620,800	Multi-adaptive processing systems and techniques for enhancing parallelism and performance of computational functions

#### **B. Actual Notice to Defendant.**

48. Xilinx is well-aware of the patents asserted in this action and that instrumentalities accused herein infringe those patents.

49. On or around February 22, 2013, counsel for SRC Computers sent a notice letter to Xilinx advising that “Our client has recently become aware of Xilinx’ Zynq-7000 All Programmable SoC devices which are stated to integrate an ARM® dual-core Cortex™-A9 CPU as an application processor unit in conjunction with programmable logic. From the information presently available to us, these devices may possibly involve SRC Computers’ patented technology.”

50. Between July 2015 and November 2015 SRC Computers and Xilinx communicated regarding a potential acquisition by Xilinx of SRC Computers and/or its intellectual property (“IP”). Persons involved on behalf of Xilinx included Greer Person, Ron Satori, Nate Gazdik, Michael White, and Ivo Bolsens. Persons involved on behalf of SRC Computers included Brandon Freeman and Jon Huppenthal.

51. A third party, 3LP Advisors, LLC (“3LP”), assisted with discussions on behalf of SRC Computers.

52. In order to assist Xilinx with reviewing SRC Computers' patent portfolio, 3LP provided Xilinx with a list of SRC Computers' IP, including the '867 patent, on or around October 1, 2015.

53. On October 18, 2017, SRC Labs sued Amazon Web Services, Inc., Amazon.com, Inc., and VADATA, Inc. (collectively the "Amazon Defendants") alleging infringement of five patents, including the '311 patent and '867 patent. *SRC Labs, LLC v. Amazon Web Services, Inc.*, No. 1-17-cv-01227 (E.D. Va.). The complaint (the "Amazon Complaint") filed in that case (the "Amazon Case") alleged that the Amazon Defendants' products infringed the '867 patent and '311 patent based on its usage of Xilinx FPGA products.

54. Moreover, specifically, the Amazon Complaint included—as Exhibit G—a publicly-available claim chart demonstrating how the Amazon Defendants' product EC2 F1 Instance infringed the '867 patent based on its usage of a Xilinx UltraScale+ FPGA. Plaintiff accuses that device of infringing the '867 patent in this First Amended Complaint and accused said device of infringement in its Original Complaint for Patent Infringement ("Original Complaint") in this case.

55. The Amazon Complaint also included—as Exhibit J—a publicly-available claim chart showing how the Amazon Defendants' product EC2 F1 Instance infringed the '311 patent based on its usage of a Xilinx UltraScale+ FPGA. Plaintiff accuses that device of infringing the '311 patent in this First Amended Complaint and accused said device of infringement in its Original Complaint.

56. On or around January 8, 2018, SRC Labs, LLC served Xilinx with a subpoena in the Amazon Case. That subpoena explicitly referenced the '867 patent and the '311 patent providing Xilinx with further notice of the patents.

57. After learning of the '867 and '311 patents, and that its products infringed those patents, on July 13, 2018 Xilinx filed a petition for *inter partes* review, requesting that the Board of Patent Trials and Appeals cancel claims 1 through 5 and 8 through 10 of the '311 patent. IPR2018-01395 (hereinafter "the Xilinx IPR"), Paper No. 1. In its petition, Xilinx noted the complaint against the Amazon Defendants and admitted that "Amazon and Xilinx have a customer/supplier relationship" and that "Xilinx Ultrascale+ FPGAs and its Vivado Design Suite are referenced in the SRC Labs complaint . . ." That petition was denied on January 23, 2019. IPR201801395, Paper No. 17.

58. The district court case against the Amazon Defendants was transferred to the Western District of Washington on March 1, 2018. *SRC Labs, LLC et al v. Amazon Web Services, Inc.*, No. 2-18-cv-00317 (W.D. Wa.).

## **VI. THE PATENTS**

### **A. All Asserted Patents are Owned by SRC.**

59. On January 22, 2020, DirectStream assigned both the '867 patent and '311 patent to SRC. The assignment was recorded with the USPTO on January 24, 2020 at Reel/Frame 051615/0344.

60. All maintenance fees have been paid to the USPTO to keep the '867 patent and '311 patent enforceable for their full term.

### **B. Description of the Asserted Patents.**

#### **1. U.S. Patent 7,149,867**

61. The '867 patent is entitled "System and method of enhancing efficiency and utilization of memory bandwidth in reconfigurable hardware" and issued on December 12, 2006.

62. A true and correct copy of the '867 patent is attached as **Exhibit A**.

63. The '867 patent is valid and enforceable.

## **2. U.S. Patent 9,153,311**

64. The '311 patent is entitled "System and method for retaining DRAM data when reprogramming reconfigurable devices with DRAM memory controllers" and issued on October 6, 2015.

65. A true and correct copy of the '311 patent is attached as **Exhibit B**.

66. The '311 patent is valid and enforceable.

## **VII. COUNT ONE: DIRECT INFRINGEMENT OF THE '867 PATENT**

67. Plaintiff incorporates by reference all paragraphs above as though set forth herein.

68. Defendant has at no time, either expressly or impliedly, been licensed under the '867 patent.

69. Defendant has and continues to directly infringe the '867 patent by making, using, offering for sale, selling, and/or importing in or into the United States in violation of 35 U.S.C. § 271(a) the '867 Accused Products. For example, on information and belief Defendant tests, manufactures, and uses each of the '867 Accused Products in an infringing manner at least in order to (1) ensure that functionality such as that appearing in SRC's claim charts attached hereto, including but not limited to those portions of the charts describing descriptors for Defendant's AXI Central Direct Memory Access v.4.1 LogiCore IP core—which are documented in its AXI Central Direct Memory Access v.4.1 LogiCore IP Product Guide—PG034, work as described and (2) provide support regarding said functionality to its customers, members of its Partner Program, such as its Premier Partners, Certified Partners, Alliance Partners, and Accelerator Partners (*see* <https://www.xilinx.com/alliance.html>) and members of its University Program (*see* <https://www.xilinx.com/support/university.html>).

70. Defendant's direct infringement of the '867 patent by the '867 Accused Products has caused, and will continue to cause, substantial and irreparable damage to Plaintiff. Plaintiff is therefore entitled to an award of damages adequate to compensate for Defendant's infringement, but not less than a reasonable royalty, together with pre- and post-judgment interest and costs as fixed by the Court under 35 U.S.C. § 284.

71. Plaintiff adopts, and incorporates by reference, as if fully stated herein, **Exhibits C through G**, which are claim charts that describe and demonstrate how the '867 Accused Products infringe exemplary claims of the '867 patent. These charts collectively show that Xilinx infringes at least claims 1, 3, 4, 9, 11, and 12 of the '867 patent.

#### **VIII. COUNT TWO: INDIRECT INFRINGEMENT OF THE '867 PATENT**

72. Plaintiff incorporates by reference all paragraphs above as though set forth herein.

73. Defendant induces infringement under 35 U.S.C. § 271(b) by actively and knowingly aiding and abetting direct infringement by its users.

74. As discussed in § V.B, Defendant received actual and constructive notice of the '867 patent.

75. Defendant learned of its infringement of the '867 patent at least as a result of the filing of the Original Complaint in this case as well as the filing of this First Amended Complaint.

76. Defendant also learned that its products infringe the '867 patent as a result of the Amazon Complaint and/or the Amazon Case.

77. Through at least the filing of the Original Complaint and this First Amended Complaint, and the claim charts attached to both complaints, Defendant learned that its actions would result in users of the '867 Accused Products infringing the '867 patent.



78. For example, the claim charts attached to both complaints show how Defendant's AXI Central Direct Memory Access v.4.1 LogiCore IP Product Guide, PG034 specifically provides users with instructions on using the '867 Accused Products in an infringing manner, such as by providing instructions regarding descriptors used with said products, and said guide and descriptors are explicitly illustrated in Plaintiff's claim charts.

79. Moreover, Defendant provides guides such as that described above, as well as training and support to its customers, members of its Partner Program, such as its Premier Partners, Certified Partners, Alliance Partners, and Accelerator Partners (*see* <https://www.xilinx.com/alliance.html>) and members of its University Program (*see* <https://www.xilinx.com/support/university.html>).

80. On information and belief Xilinx teaches users to optimize applications including optimizing usage of direct memory access, such as that shown by usage of the descriptors in SRC's claim charts.

81. Xilinx actively provides support services for its products. An important part of Xilinx's support services is the Xilinx Community Portal. *See* <https://www.xilinx.com/community.html>. Xilinx hosts forums where members can ask questions and receive support both from Xilinx engineers and fellow members.

82. Defendant induces infringement of the '867 patent by marketing the '867 Accused Products and providing LogiCORE IP cores, documentation (i.e. the AXI Central Direct Memory Access v.4.1 LogiCore IP Product Guide, PG034), training, and support (i.e. through its Partner Program, and support for non-program members) on how to use said products in ways that infringe the '867 patent.



83. For example, Defendant induces infringement by providing Kits<sup>2</sup> that allow users to develop, simulate, debug, and compile FPGA applications. Defendant actively provides support services for its Kits, and other products, directly and through its Community Forum, in which Xilinx engineers provide support to users.

84. Defendant specifically intends for users of its products to infringe and knows that its acts will result in patent infringement.

### **IX.COUNT THREE: WILLFUL INFRINGEMENT OF THE '867 PATENT**

85. Plaintiff incorporates by reference all paragraphs above as though set forth herein.

86. Defendant has and continues to willfully infringe the '867 patent.

87. As discussed in § V.B herein, Defendant has long had knowledge of the '867 patent and that its products infringe that patent.

88. Even if Defendant had not had such knowledge previously, Defendant would learn of the '867 patent and its infringement as a result of the filing and/or service of Plaintiff's Original Complaint and this First Amended Complaint, and this district does not require pre-suit knowledge to establish willfulness. *DermaFocus LLC v. Ulthera, Inc.*, 201 F. Supp. 3d 465, 473 (D. Del. 2016).

89. Despite knowing of the '867 patent, Defendant continued and continues making, using, offering for sale, and selling the '867 Accused Products resulting in infringement as discussed in Counts One and Two herein. At least because of its knowledge of the '867 patent and its claims, Defendant knew or should have known that its conduct resulted in infringement of several claims of the '867 patent. Moreover, Defendant was provided information regarding its infringement in the Original Complaint and this First Amended Complaint.

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<sup>2</sup> "Kits" includes the accused evaluation kits, characterization kits, and connectivity kits.

90. Defendant has continued its infringement of the '867 patent despite its knowing that claims 1, 3 through 9, and 11 through 19 of the '867 patent were held valid on May 10, 2019 by the Patent Trial and Appeal Board in *inter partes* review proceeding IPR2019-00103, a proceeding requested by Defendant's customers: the Amazon Defendants.

91. Therefore, Defendant's infringement was intentional or knowing. Defendant knows or should know that its continued activities result in infringement of the '867 patent.

92. Defendant's actions have not been consistent with the standards of behavior in its industry.

93. Defendant made no effort to avoid infringing the '867 patent.

94. Defendant's infringement of the '867 patent is willful, deliberate, and/or consciously wrongful, and therefore Plaintiff should receive enhanced damages up to three times the amount of actual damages for Defendant's willful infringement under 35 U.S.C. § 284.

#### **X. COUNT FOUR: DIRECT INFRINGEMENT OF THE '311 PATENT**

95. Plaintiff incorporates by reference all paragraphs above as though set forth herein.

96. Defendant has at no time, either expressly or impliedly, been licensed under the '311 patent.

97. Defendant has and continues to directly infringe the '311 patent by making, using, offering for sale, selling, and or importing in or into the United States in violation of 35 U.S.C. § 271(a) the '311 Accused Products. For example, on information and belief Defendant tests, manufactures, and uses each of the '311 Accused Products in an infringing manner at least in order to (1) ensure that functionality such as that appearing in SRC's claim charts attached hereto, including but not limited to those portions of the charts describing partial reconfiguration, works as described and (2) provide support regarding said reconfiguration to

its customers, members of its Partner Program, such as its Premier Partners, Certified Partners, Alliance Partners, and Accelerator Partners (see <https://www.xilinx.com/alliance.html>) and members of its University Program (see <https://www.xilinx.com/support/university.html>).

98. Defendant's direct infringement of the '311 patent by the '311 Accused Products has caused, and will continue to cause, substantial and irreparable damage to Plaintiff. Plaintiff is therefore entitled to an award of damages adequate to compensate for Defendant's infringement, but not less than a reasonable royalty, together with pre- and post-judgment interest and costs as fixed by the Court under 35 U.S.C. § 284.

99. Plaintiff adopts, and incorporates by reference, as if fully stated herein, **Exhibits H through K**, which are claim charts that describe and demonstrate how the '311 Accused Products infringe exemplary claims of the '311 patent. These charts collectively show that Xilinx infringes at least claims 1, 3, 9, and 10 of the '311 patent.

#### **XI.COUNT FIVE: INDIRECT INFRINGEMENT OF THE '311 PATENT**

100. Plaintiff incorporates by reference all paragraphs above as though set forth herein.

101. Defendant induces infringement under 35 U.S.C. § 271(b) by actively and knowingly aiding and abetting direct infringement by its users.

102. As discussed in § V.B, Defendant received actual and constructive notice of the '311 patent.

103. Defendant learned of its infringement of the '311 patent at least as a result of the filing of the Original Complaint in this case as well as the filing of this First Amended Complaint.

104. Defendant also learned that its products infringe the '311 patent as a result of the Amazon Complaint and/or the Amazon Case.

105. Through at least the filing of the Original Complaint and this First Amended Complaint, and the claim charts attached to both complaints, Defendant learned that its actions would result in users of the '311 Accused Products infringing the '311 patent.

106. For example, the claim charts attached to both complaints show how Defendant's UltraScale Architecture-Based FPGA's Memory IP v1.4 LogiCORE IP Product Guide, PG150 provides explicit instructions on using the '311 Accused Products in an infringing manner, such as through partial reconfiguration.

107. Defendant's UltraScale Architecture-Based FPGA's Memory IP v1.4 LogiCORE IP core described in its UltraScale Architecture-Based FPGA's Memory IP v1.4 LogiCORE IP Product Guide, PG150 provides a complete solution for interfacing external DRAM memories to the user FPGA logic. One component of this Memory IP is a memory controller with a maintenance block – both are implemented as part of the reconfigurable processor (FPGA). One of the functions this maintenance block supports is "Self Refresh." The "Self Refresh" feature keeps the DRAM in self-refresh mode; for instance during partial reconfiguration.

108. Moreover, Defendant provides guides such as that described above, as well as training and support to its customers, members of its Partner Program, such as its Premier Partners, Certified Partners, Alliance Partners, and Accelerator Partners (*see* <https://www.xilinx.com/alliance.html>) and members of its University Program (*see* <https://www.xilinx.com/support/university.html>).

109. Xilinx teaches users to use the '311 Accused Products in an infringing manner, such as that shown by partial reconfiguration in SRC's claim charts.

110. Xilinx actively provides support services for its products. An important part of Xilinx's support services is the Xilinx Community Portal. *See*

<https://www.xilinx.com/community.html>. Xilinx hosts forums where members can ask questions and receive support both from Xilinx engineers and fellow members.

111. Defendant induces infringement of the '311 patent by marketing the '311 Accused Products and providing LogiCORE IP cores, documentation (i.e., the UltraScale Architecture-Based FPGA's Memory IP v1.4 LogiCORE IP Product Guide, PG150), training, and support (i.e. through its Partner Program, and support for non-program members) on how to use said products in ways that infringe the '311 patent.

112. For example, Defendant induces infringement by providing Kits that allow users to develop, simulate, debug, and compile FGPA applications. Defendant actively provides support services for its Kits, and other products, directly and through its Community Forum, in which Xilinx engineers provide support to users.

113. Defendant specifically intends for users of its products to infringe and knows that its acts will result in patent infringement.

## **XII. COUNT SIX: WILLFUL INFRINGEMENT OF THE '311 PATENT**

114. Plaintiff incorporates by reference all paragraphs above as though set forth herein.

115. Defendant has and continues to willfully infringe the '311 patent.

116. As discussed in § V.B herein, Defendant has long had knowledge of the '311 patent and that its products infringe that patent.

117. Even if Defendant had not had such knowledge previously, Defendant would learn of the '311 patent and its infringement as a result of the filing of Plaintiff's Original Complaint and this First Amended Complaint, and this district does not require pre-suit knowledge to establish willfulness. *DermaFocus LLC v. Ulthera, Inc.*, 201 F. Supp. 3d 465, 473 (D. Del. 2016).

118. Despite knowing of the '311 patent, Defendant continued and continues making, using, offering for sale, and selling the '311 Accused Products resulting in infringement as discussed in Counts Four and Five herein. At least because of its knowledge of the '311 patent and its claims, Defendant knew or should have known that its conduct resulted in infringement of several claims of the '311 patent. Moreover, Defendant was provided information regarding its infringement in the Original Complaint and this First Amended Complaint.

119. Defendant has continued its infringement of the '311 patent despite its knowing that claims 1 through 5 and 8 through 10 of the '311 patent were held valid on January 23, 2019 in the Xilinx IPR.

120. Therefore, Defendant's infringement was intentional or knowing. Defendant knows or should know that its continued activities result in infringement of the '311 patent.

121. Defendant's actions have not been consistent with the standards of behavior in its industry.

122. Defendant made no effort to avoid infringing the '311 patent.

123. Defendant's infringement of the '311 patent is willful, deliberate, and/or consciously wrongful, and therefore Plaintiff should receive enhanced damages up to three times the amount of actual damages for Defendant's willful infringement under 35 U.S.C. § 284.

### **XIII. CONCLUSION**

124. Plaintiff is entitled to recover from Defendant the damages sustained by SRC as a result of Xilinx's wrongful acts in an amount subject to proof at trial, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court.

125. Plaintiff has incurred and will incur attorneys' fees, costs, and expenses in the prosecution of this action.

126. Plaintiff reserves the right to amend, supplement, or modify its allegations of infringement as facts regarding such allegations arise during the course of this case.

#### **XIV. JURY DEMAND**

127. Plaintiff hereby demands a trial by jury for all causes of action.

#### **XV. PRAYER FOR RELIEF**

Plaintiff requests the following relief:

A. A judgment that Defendant has infringed and continues to infringe the '867 patent and '311 patent;

B. A judgment and order requiring Defendant to pay Plaintiff damages under 35 U.S.C. § 284, including treble damages for willful infringement as provided by 35 U.S.C. § 284, and supplemental damages for any continuing post-verdict infringement up until entry of the final judgment with an accounting as needed;

C. A judgment and order requiring Defendant to pay Plaintiff pre-judgment and post-judgment interest on the damages awarded;

D. A judgment and order awarding a compulsory ongoing royalty; and

E. Such other and further relief as the Court deems just and equitable.

Dated: July 20, 2020

Respectfully submitted,

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